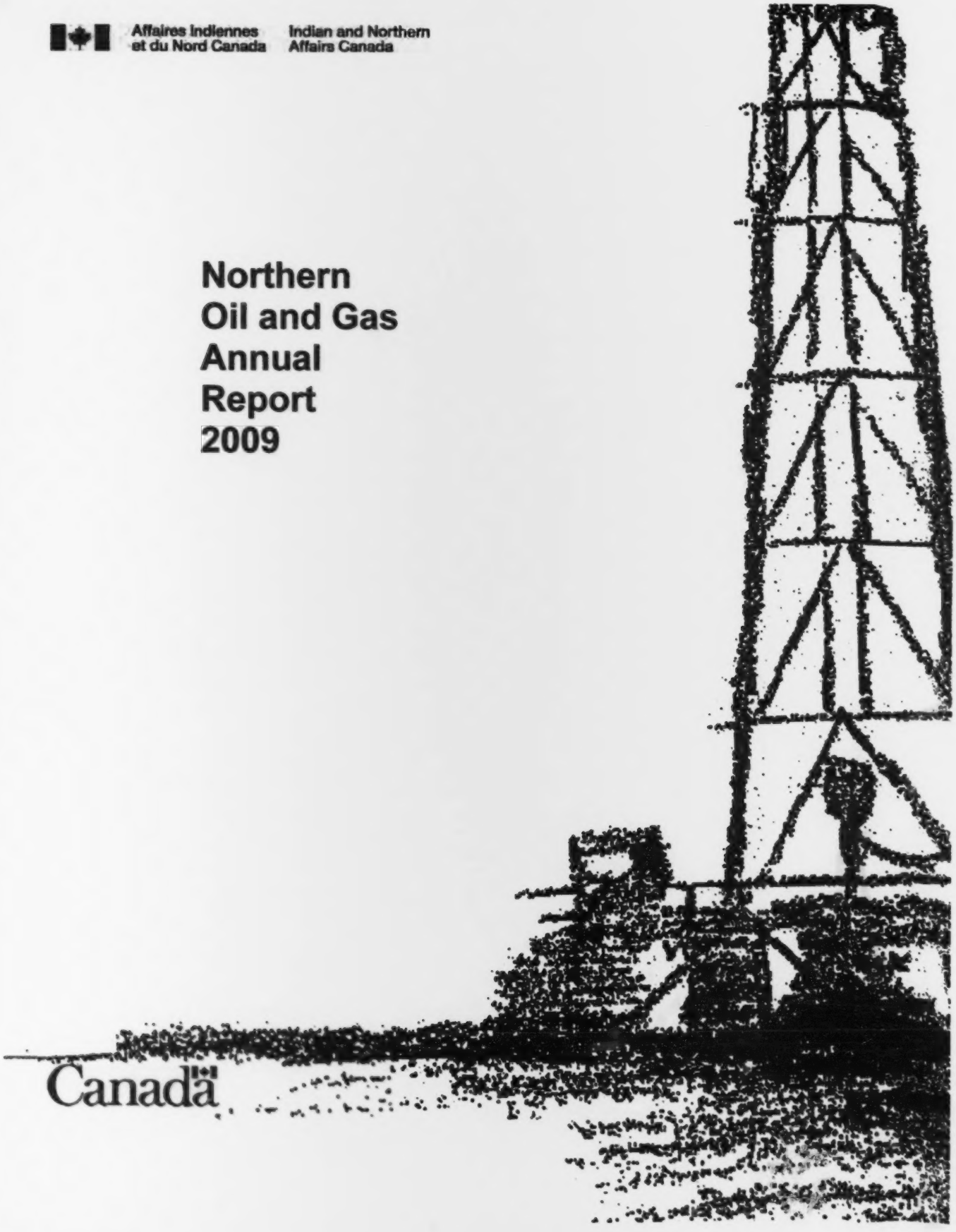
Affaires indiennes et du Nord Canada | Indian and Northern Affairs Canada

Northern Oil and Gas Annual Report 2009



Canada

Affaires indiennes et du Nord Canada | Indian and Northern Affairs Canada

Northern Oil and Gas Annual Report 2009

The management of oil and gas resources on Crown lands north of latitude 60°N in the Northwest Territories, Nunavut and the northern offshore is a federal responsibility carried out by the Northern Oil and Gas Branch of Indian and Northern Affairs Canada.

Petroleum resource management on Crown lands is exercised under federal legislation. The *Canada Petroleum Resources Act* and its regulations govern the granting and administration of Crown exploration and production rights and set the royalty regime. The *Canada Oil and Gas Operations Act* governs the regulation of petroleum operations and associated benefits requirements. Land, royalty and benefit matters are managed by the department on behalf of the Minister of Indian Affairs and Northern Development while the National Energy Board takes the lead role in approval of operations.

Information on the northern oil and gas regime may be found on the web at:
http://www.ainc-inac.gc.ca/nth/og/

Canada

Published under the authority of the
Minister of Indian Affairs and Northern
Development and Federal Interlocutor for
Métis and Non-Status Indians
Ottawa, 2010
www.ainc-inac.gc.ca
1-800-567-9604
TTY only 1-866-553-0554

QS-8509-100-EE-A1
Catalogue No. R71-47/2009E-PDF
ISBN 978-1-100-15315-5

© Minister of Public Works and Government Services Canada

Cette publication est aussi disponible en français sous le titre :
Pétrole et gaz du Nord Rapport annuel 2009

Message from the Honourable Chuck Strahl, P.C., M.P. Minister of Indian Affairs and Northern Development and Federal Interlocutor for Métis and Non-Status Indians

The North remains a top priority for this government, and under the Northern Strategy, we will continue to focus on Northern, Aboriginal and industry partnerships that address the local needs as well as concerns shared by all Canadians.

Given the vast potential of natural resources throughout the Arctic and the global appetite for this vital energy source, key investments in oil and gas exploration and development in Canada's North must, and will continue. Our Government's shared interest in this area is being successfully advanced through partnerships on all fronts: science and research, regulatory, economic development, and governance.

The Government of Canada remains committed to sustainable and responsible development in the North. This past year, we focused on completing a number of administrative changes that will better serve the sector by allowing industry and communities more time to discuss and accommodate unpredictable operating conditions. Also, Geo-mapping for Energy and Minerals (GEM) is in its second year of a five year program that focuses mainly on mapping and identifying the Arctic's potential for energy and mineral resources. Improving access to scientific data will help with development decisions, particularly those related to resource exploration.

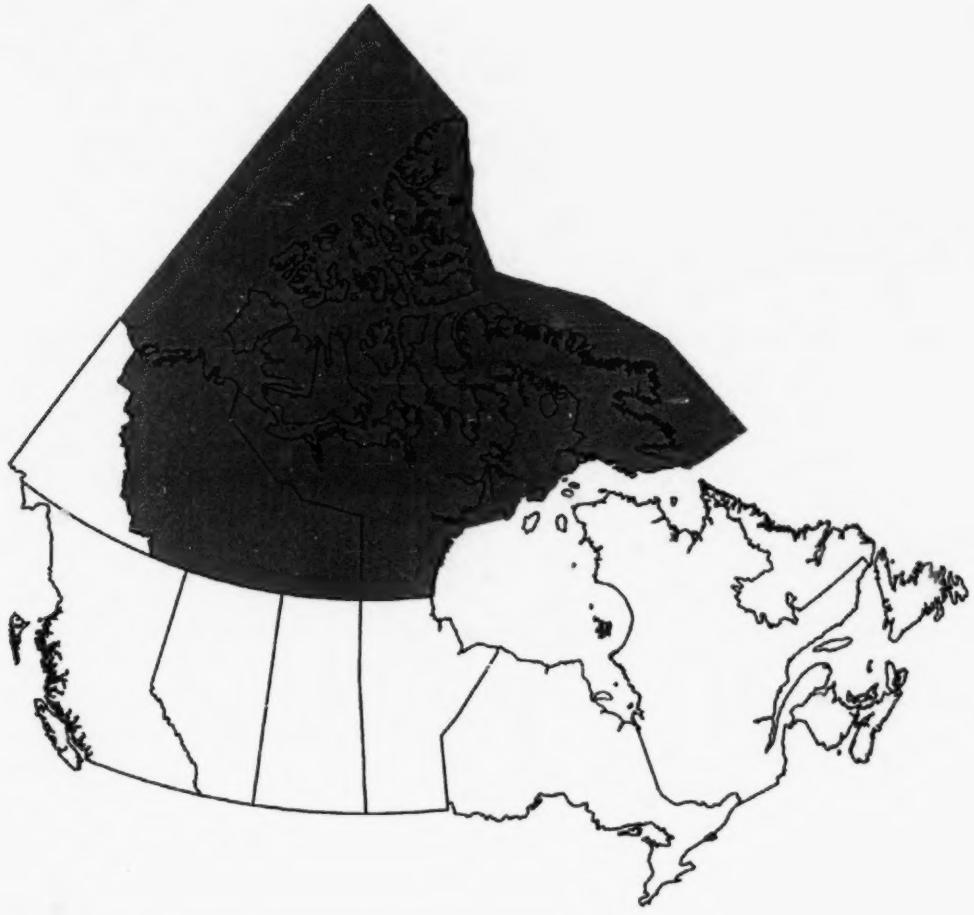
This Government recognizes that securing the future of Canada's North will benefit all Canadians. Over the next two years, investments of $11 million for streamlining the northern regulatory regime and $8 million for environmental monitoring in the North, announced in the 2010 budget, will further support our vision for the North as a prosperous region within a strong and sovereign Canada.

I invite you to consult this report for further details on the past year's exploration and development of Canada's northern oil and gas resources.

In accordance with section 109 of the Canadian Petroleum Resources Act, I am pleased to table before Parliament this annual report on the administration of oil and gas lands in the Northwest Territories, Nunavut, and the northern offshore for the year ending December 31, 2009.

Chuck Strahl
May 6, 2010

Canada's Frontier Lands



Area under the responsibility of the Minister of Indian Affairs and Northern Development

Table of Contents

NORTHERN OIL AND GAS 7
INTRODUCTION 7
History 7
2009 In Brief 8
OIL AND GAS RESOURCES 9

OIL AND GAS MANAGEMENT 11
RIGHTS ISSUANCE 11
Interests Issued in 2009 12
Significant and Commercial Discovery Declarations and Development Plan Submissions 12
ADMINISTRATION OF INTERESTS 13
Exploration Licences 13
Security Deposits Being Administered 16
Benefits 16
ENVIRONMENTAL CONSIDERATIONS 17
Environmental Sensitivities in the Southern Beaufort Sea and Mackenzie Delta 17
Environmental Studies Research Funds (ESRF) 18

EXPLORATION ACTIVITY IN THE NORTH 19
NORTHERN OPERATIONS 19

DEVELOPMENT AND PRODUCTION 22

ROYALTIES 25
Audits and Assessments 25
Royalty Administration 25

FURTHER INFORMATION 26
Northern Oil and Gas Branch 26
Other Sources of Information 27

List of Tables

Table 1: Oil and Gas Prices 7

Table 2: Oil & Gas Resources 10

Table 3: Land Disposition as of December 31, 2009 13

Table 4: Exploration Licences 14

Table 5: Revenues from Administration of Interests ($) 16

Table 6: Drilling Statistics 2009 21

Table 7: Seismic Acquisition 21

Table 8: Oil and Gas Production 23

Table 9: Royalties ($) 25

List of Figures

Figure 1: Wells Drilled 20

Figure 2: Oil Production 24

Figure 3: Gas Production 24

NORTHERN OIL AND GAS

Introduction

As conventional resources in the traditional producing areas of western Canada are depleted, the oil and gas resources of Canada's North become increasingly important as potential sources of light oil, natural gas liquids and natural gas. Their future development can complement growing oil sand production and shale gas development in western Canada, broadening the choice of strategic options for energy development and expanding opportunities for the exploration industry in Canada.

Among northern petroleum basins the Beaufort-Mackenzie Basin is known to be particularly rich in both oil and gas with 59 discoveries to date. Onshore exploration in this basin continues to meet with success, and exploration is now probing the deep water areas of the Beaufort Sea beyond the edge of the continental shelf, areas unexplored by previous phases of exploration. New concepts and new technology are being deployed by major oil companies active on a global scale to unlock the potential of this offshore area, one where the operating season is short and ice conditions challenging.

Low natural gas prices through much of 2009 (see Table 1) have not encouraged new investment in northern exploration. One factor in keeping prices low has been the advent of shale gas, a new and substantial contribution to gas supply. Compared with natural gas, oil prices have been moderate and relatively stable.

Table 1: Oil and Gas Prices

	December 2008	December 2009	Average 2009
Oil - C$ per m^3 (Average at Edmonton)	561.99	469.74	416.41
Gas - C$ per GJ (Average at AECO)	6.01	4.61	4.07

Source: Natural Resources Canada

Investment in northern petroleum exploration has been affected by delays concerning a planned Mackenzie gas pipeline. A positive signal on this development is key for many companies with discovered resources which remain stranded in the Mackenzie Delta and central Mackenzie Valley. In this regard, the publication of the report of the Joint Review Panel for the Mackenzie Gas Project on December 30, 2009 is an important step[1].

History

Oil and gas exploration has a long history in the Canadian North, dating back to the Norman Wells oil discovery drilled in 1920. The late 1940s and 1950s saw increased exploration in the southern Northwest Territories followed by exploration throughout the North in the period 1960 to 1985, activity stimulated by the 'oil price shock' of 1974 and concerns for domestic supply.

The mid 1980s saw expanded development of the major Norman Wells oil field in the central Mackenzie Valley and the construction of a pipeline from Norman Wells to northern Alberta.

Current interest in the North dates from the mid-1990s. Investment in oil and gas exploration began to flow north in 1995 with the issuance of new Exploration Licences (ELs)

[1] *Foundation for a Sustainable Northern Future* – Report of the Joint review Panel for the Mackenzie Gas Project, December 2009

by the Crown in the southern Northwest Territories, closely followed by the central Mackenzie Valley. In 1999 and 2000, and in the years following, companies acquired exploration rights to lands across much of the Mackenzie Delta and adjacent offshore. This stimulated a resurgence of exploration activity over the past decade as companies worked to meet their drilling commitments on the licences. In 2007 and 2008 this interest extended to deeper water areas of the outer continental shelf in the central Beaufort Sea.

Over the decade, activity on Crown lands (and adjoining private Aboriginal lands where exploration rights are awarded by Aboriginal organizations) has generated diverse benefits for local and regional economies, including training, employment and business opportunities, reflecting the potential of oil and gas as a driver of the northern economy.

2009 In Brief

Northern oil and gas activities were affected by global economic conditions. For the first time in many years, but not unexpected in the current economic environment, there was no response from industry to either the Mackenzie Delta-Beaufort Sea or Central Mackenzie Valley Calls for Nominations which closed early in the year. No interest was expressed in the Arctic Islands of Nunavut call, continuing the pattern of recent years.

Three new exploratory wells were drilled: one was announced as a gas discovery by the company and later confirmed as a significant discovery by the National Energy Board. The Board also declared two other significant discoveries in 2009, although these relate to wells drilled in previous years.

In the Beaufort Sea, BP completed its late summer seismic operations successfully with 1,488 km of 2D seismic and 1,577 km^2 of 3D seismic acquired.

From an operations viewpoint, 2009 saw a decline in exploration expenditures estimated at $117 million, about half of the 2008 total.

Three fields produced oil and gas in 2009: the Norman Wells oil field in the central Mackenzie Valley, the Ikhil gas field on the Mackenzie Delta and the Cameron Hills field southwest of Hay River in the southern Northwest Territories. Total natural gas production in 2009 was 192.4 x 10^6 m^3, a 5.2% drop in production from the previous year. Total oil production in 2009 was 901.2 x 10^3 m^3, a 4.3% decline.

Royalties received in the calendar year 2009 from oil and gas production on northern frontier lands amounted to $18,876,656. This decline of 38% was due to decreased production and a drop in prices from 2008 levels.

Oil and Gas Resources

Oil and gas resources in Canada's North[2] form approximately 33% of Canada's remaining conventionally recoverable resources of natural gas and 35% of remaining recoverable light crude oil. These percentages do not take into account resources of unconventional gas and oil.

Regional estimates[3] are in Table 2. These are mean estimates of potential derived by probabilistic methods using sparse data. Large uncertainties remain about resource potential in most of Canada's northern petroleum basins, especially for conceptual exploration plays which have yet to be proven by the drill.

The most accessible of these potential resources lie between the border with the provinces at 60 degrees North and the Beaufort Sea in a broad corridor running between the Rocky Mountains and the Canadian Shield, including the northern fringe of the Western Canada Sedimentary Basin. The western Arctic includes much of the Northwest Territories and adjacent Arctic offshore, an area estimated to contain more than half of the recoverable petroleum in northern Canada, with the Beaufort-Mackenzie Basin as the largest potential contributor.

In the Mackenzie Delta area, major gas fields at Taglu and Parsons Lake, together with the large Niglintgak field are proposed for development by the Mackenzie Gas Project (MGP). Combined resources in these fields are estimated by the proponents of the MGP at 161 x 10^9 m^3 (5.7 trillion cubic feet)[4].

In 2009, the National Energy Board confirmed two additional significant discoveries onshore Mackenzie Delta bringing the total number of discoveries in the basin to 59. MGM Energy, the only onshore operator on the Delta in 2009, announced discovered gas resources in its Ellice J-27 well quoting mean estimates of contingent and total prospective resources of 327 billion cubic feet and 121 billion cubic feet respectively[5] (9.3 x 10^9 m^3 and 3.4 x 10^9 m^3), new gas resources in proximity to anchor fields for the Mackenzie Gas Project.

Other discovered gas fields in the central Mackenzie Valley could access a Mackenzie Valley pipeline by means of a short lateral pipeline. The Nogha C-49/M-17 discovery in the Colville Hills is inferred to contain about 212 billion cubic feet[5] (6.0 x 10^9 m^3) of natural gas based on company filings. In 2009, the National Energy Board also declared a significant discovery at Lac Maunoir C-34 which MGM announced as an oil discovery, flowing 235 gross barrels per day[4] (37.4 cubic metres per day).

Discovered gas volumes in Canada's Arctic Islands (North of latitude 75°) are comparable to those in the Beaufort Sea-Mackenzie Delta region. The most promising basin is the Sverdrup Basin where past discoveries include major gas fields at Drake Point and nearby Hecla with combined resources estimated at 257 x 10^9 m^3 (9.1 trillion cubic feet). Significant

[2] For regions under the administration of the Minister of Indian Affairs and Northern Development in the Northwest Territories, Nunavut, and Arctic offshore.

[3] Drummond Consulting 2009, Northern Canada Distribution of Ultimate Oil and Gas Resources (Update), prepared for Indian and Northern Affairs Canada, 63 p. Available at http://drummondconsulting.com/NCAN09Report.pdf.

[4] Imperial Oil Ventures Limited, 2004; Application to the National Energy Board for Approval of the Mackenzie Valley Pipeline; Volume II Economics, Tolls and Tarifs; Gas Supply Study, section 4.1.

[5] MGM Energy Corp Annual Information Form March 23, 2009

oil discoveries and large unexplored oil and gas potential is also present in this vast region of diverse geology.

Large parts of the North remain entirely undrilled. Examples are the Arctic Continental Shelf, deep water areas of the Beaufort Shelf and slope, most of Baffin Bay and Lancaster Sound. In these areas, oil and gas potential remains largely conceptual.

Of potential future interest for development are unconventional hydrocarbons in the North. These include oil sands, gas from coal, shale and accumulations of methane hydrates beneath the Mackenzie Delta. In particular, the shale gas potential of the northern extension of the Horn River Basin into the southern Northwest Territories has yet to be added to estimates of gas potential: building activity in British Columbia will help define the potential of comparable shale units north of 60 in due course.

Table 2: Oil & Gas Resources

OIL RESOURCES

	Discovered Resources		Undiscovered Resources		Ultimate Potential	
Region	**10^6 m^3**	***MMbbls***	**10^6 m^3**	***MMbbls***	**10^6 m^3**	***MMbbls***
Northwest Territories and Arctic Offshore	187.9	*1182.5*	799.7	*5032.6*	987.6	*6215.0*
Nunavut and Arctic Offshore	51.3	*322.9*	371.8	*2339.4*	423.1	*2662.3*
Arctic Offshore Yukon	62.5	*393.8*	412.7	*2596.8*	475.2	*2990.6*
Total	**301.7**	***1899.1***	**1584.1**	***9968.8***	**1885.9**	***11867.9***

GAS RESOURCES

	Discovered Resources		Undiscovered Resources		Ultimate Potential	
Region	**10^9 m^3**	***Tcf***	**10^9 m^3**	***Tcf***	**10^9 m^3**	***Tcf***
Northwest Territories and Arctic Offshore	457.6	*16.2*	1542.2	*54.8*	1999.8	*71.0*
Nunavut and Arctic Offshore	449.7	*16.0*	1191.9	*42.3*	1641.6	*58.3*
Arctic Offshore Yukon	4.5	*0.2*	486.6	*17.3*	491.1	*17.4*
Total	**911.8**	***32.7***	**3220.7**	***114.3***	**4132.6**	***146.7***

- MMbbls - million barrels (of oil); Tcf - trillion cubic feet (of natural gas).
- Resources are 'recoverable': standard recovery factors have been applied.
- Conceptual resources are risked. Numbers may not add precisely due to rounding.
- Adapted from Table 1 and Table 4 in Drummond, K.J. 2009, Northern Canada Distribution of Ultimate Oil and Gas Resources. Available at www.drummondconsulting.com/NCAN09Report.pdf. Compiled and integrated from several published sources which may underestimate or overestimate actual field resources. Volumes and distribution should be regarded as approximate and reflect the opinion of the author.
- The Arctic Offshore includes marine areas offshore Yukon and the Northwest Territories in the Beaufort Sea, and offshore Nunavut in the High and Eastern Arctic. Resources within Yukon are not included.
- Note that discovered gas volumes do not include estimates for recent discoveries (at Ellice I-48, Olivier H-01, Langley K-30, Langley E-07, Kurk M-15 and Ellice J-27 in the Mackenzie Delta, and Summit Creek B-44, Stewart D-57, Lac Maunoir C-34 and Nogha C-49 in the central Mackenzie Valley)

OIL AND GAS MANAGEMENT

Rights Issuance

The Minister of Indian Affairs and Northern Development provides industry with an annual opportunity to obtain exploration rights in the Northwest Territories, Nunavut and the northern offshore. The exploration rights are issued pursuant to the *Canada Petroleum Resources Act*. Current oil and gas disposition maps are available on the Indian and Northern Affairs Canada website (www.ainc-inac.gc.ca/nth/og).

In accordance with the provisions of comprehensive land claim settlement agreements, the views and support of Aboriginal communities and organizations on the terms and conditions of the issuance and related matters are sought prior to rights issuance.

A Call for Nominations precedes each Call for Bids, allowing industry to specify lands of interest for subsequent inclusion in a Call for Bids. Calls for Bids are open for the statutory minimum of 120 days.

Exploration rights are issued pursuant to an open, competitive bidding process. A single bid evaluation criterion - currently the expenditure planned on exploration of the land block ('work expenditure bid') - is used to determine the successful bidder who is issued an Exploration Licence of up to nine years, comprising two periods. The successful bidder is expected to spend the dollar value of the proposed work during the first period of the licence, and is required to drill one well during this first period to continue the licence into the second period.

In December 2009, the term of future Exploration Licences issued in the central Mackenzie Valley was increased from eight to nine years. The longer term will comprise of two consecutive periods of five and four years, rather than two equal periods of four years. In addition, interest holders were given the option to amend the term of existing Exploration Licences in Period 1 located in the region from eight to nine years. Nine years is the maximum term permitted under the *Canada Petroleum Resources Act* and is consistent with the term of Exploration Licences issued in the Beaufort Sea/Mackenzie Delta and the Arctic Islands of Nunavut.

As of December 2009, the successful bidder will have 15 working days, up from 10 working days, to post the work deposit (25% of the work proposal bid). This period commences the day following the notice of winning bids being posted on the Indian and Northern Affairs Canada website (www.ainc-inac.gc.ca/nth/og).

Also in 2009, clarifications were made to certain terms and conditions respecting the initiation of Exploration Licences and the Drilling Deposit Policy. Details can be found within the current Terms and Conditions.

In January 2009, three Calls for Nominations closed in the Beaufort Sea/Mackenzie Delta, Central Mackenzie Valley and Arctic Islands of Nunavut. Industry did not respond to these Calls for Nominations and no Calls for Bids were issued in 2009.

In December 2009, two Calls for Nominations were issued for the Beaufort Sea/Mackenzie Delta and Central Mackenzie Valley, both closing January 28, 2010. Also, preparations

were underway for a Call for Nominations in the Arctic Islands of Nunavut in January 2010.

Interests Issued in 2009

As industry did not respond to Calls for Nominations in 2009, no new Exploration Licences were issued in the Beaufort Sea/Mackenzie Delta, Central Mackenzie Valley or the Arctic Islands of Nunavut.

Through the year, seven Exploration Licences terminated; six by expiry and one by surrender.

Two Significant Discovery Licences (SDL) were issued: SDL145 to Suncor Energy Inc. (formerly Petro-Canada) and SDL146 to BP Canada Energy Company, Chevron Canada Limited and MGM Energy Corp.

No Production Licences were issued during the year.

Significant and Commercial Discovery Declarations and Development Plan Submissions

The National Energy Board made three significant discovery declarations in 2009 pursuant to the *Canada Petroleum Resources Act* Part III, s. 28(1) and the *National Energy Board Act* Part II.1, s. 28.2(4): to Petro-Canada in respect of the PC Anderson Kurk M-15 well on EL419 in the Mackenzie Delta, drilled in 2002; to MGM Energy Corp. for the MGM et al. Lac Maunoir C-34 well on EL399 in the Colville Hills, drilled in 2004; and, to MGM Energy Corp. for the MGM et al. Ellice J-27 well on EL427, in the Mackenzie Delta, drilled over the winter of 2008-2009.

No applications either for commercial discovery declaration or for development plan approval were received during 2009.

Table 3: Land Disposition as of December 31, 2009

Region	Exploration Licence	Production Licence	Significant Discovery Licence	Former Rights [1]	Total
In hectares					
Arctic Islands	0	1,224	332,882	0	334,106
Eastern Arctic Offshore	0	0	11,184	862,500	873,684
Hudson Bay [2]	0	0	0	126,376	126,376
Beaufort Sea	2,020,581	0	192,668	0	2,213,249
Mackenzie Delta	75,536	3,423	132,619	0	211,578
Central Mackenzie Valley	1,638,396	0	61,471	654	1,700,521
Southern Northwest Territories	0	32,842	65,125	24,998	122,965
Total	**3,734,513**	**37,489**	**795,949**	**1,014,528**	**5,582,479**

Region	Exploration Licence	Production Licence	Significant Discovery Licence	Former Rights [1]	Total
By Interest Type (number of licences)					
Arctic Islands	0	1	20	0	21
Eastern Arctic Offshore	0	0	1	30	31
Hudson Bay [2]	0	0	0	8	8
Beaufort Sea	12	0	39	0	51
Mackenzie Delta	1	2	37	0	40
Central Mackenzie Valley	21	0	11	6	38
Southern Northwest Territories	0	21	31	11	63
Total	**34**	**24**	**139**	**55**	**252**

[1] Permits and/or Leases issued under former legislative regimes pursuant to s. 112(2) of the *Canada Petroleum Resources Act*.

[2] Offshore permits in Hudson Bay are under the jurisdiction of Natural Resources Canada. Permits onshore islands in northern Hudson Bay are under the jursisdiction of Indian and Northern Affairs Canada.

Administration of Interests

Exploration Licences

Table 4 lists the Exploration Licences active in 2009. During the year, seven Exploration Licences terminated; six by expiry and one by surrender. Exploration Licences in Period 1 in the central Mackenzie Valley were extended by one year.

In order to obtain an Exploration Licence, the bidder must post a bid deposit for the specific parcel in the amount of $10,000. The successful bidder is required to post 25% of the work expenditure bid as security for the performance of work within 15 working days. Failure to post the work deposit as security for the performance of work will result in the

disqualification of the bid and forfeiture of the bid deposit. In that event, the Minister may, if he sees fit, award the Exploration Licence to the second highest bidder without making another Call for Bids.

Both the work deposit required for Period 1 and the rentals in Period 2 are refundable upon completion and approval of the work undertaken on the licence. Should expenditures in Period 1 fail to meet the amount of the work expenditure bid, the residue of the deposit is forfeit. Similarly, rentals are required in full at the beginning of each year in Period 2 and any rental balance remaining at the end of Period 2 is forfeit.

Administration of the deposits includes the approval of allowable expenditures submitted as exploratory work is completed. Deposit administration is ongoing throughout the year as new deposits are received for the rentals due in Period 2 and adjustments are made to those already in the system.

Table 4: Exploration Licences

Licence	Area (ha)	Representative [1]	Effective Date	Well to be Drilled by [5]		Expiry Date	Work Bid Amount (in $)
Beaufort Sea/Mackenzie Delta							
EL317 [2]	175,810	Talisman Energy Inc.	5-Oct-1986	N/A			N/A
EL329 [2]	349,981	BP Canada Energy Resources	5-Sep-1987	N/A			N/A
EL427-A [4]	73,608	MGM Energy Corp	20-Sep-2004	14-Aug-2005	✓	14-Aug-2009	
EL427-B	18,912	MGM Energy Corp	20-Sep-2004	13-May-2007	✓	13-May-2011	151,758,288 [3]
EL427-C	54,829	MGM Energy Corp	20-Sep-2004	7-Jun-2009	✓	7-Jun-2013	
EL434	56,619	MGM Energy Corp.	3-May-2006	2-May-2011		2-May-2015	40,169,000
EL435	99,942	Shell Canada Limited	3-May-2006	2-May-2011		2-May-2015	11,552,332
EL446	205,321	Imperial Oil Resources Ventures Limited	1-Oct-2007	30-Sep-2012		30-Sep-2016	585,000,000
EL447	103,711	ConocoPhillips Canada Resources Corp.	1-Sep-2007	31-Aug-2012		31-Aug-2016	12,084,131
EL448	108,185	Chevron Canada Limited	31-Dec-2007	30-Dec-2012		30-Dec-2016	1,010,100
EL449	202,380	BP Exploration Company Ltd.	1-Dec-2008	30-Nov-2013		30-Nov-2017	1,180,100,000
EL450	41,323	MGM Energy Corp.	3-Jun-2008	2-Jun-2013		2-Jun-2017	1,754,636
EL451	205,359	BP Exploration Company Ltd.	1-Dec-2008	30-Nov-2013		30-Nov-2017	15,100,000
EL452	196,497	ConocoPhillips Canada Resources Corp.	1-Dec-2008	30-Nov-2013		30-Nov-2017	2,543,896
EL453	203,635	BP Exploration Company Ltd.	1-Dec-2008	30-Nov-2013		30-Nov-2017	1,100,000

TABLE 4 CONTINUED ON NEXT PAGE

Table 4: Exploration Licences (continued)

Licence	Area (ha)	Representative [1]	Effective Date	Well to be Drilled by [5]		Expiry Date	Work Bid Amount (in $)
Central Mackenzie Valley - Mainland							
EL413	80,464	Kodiak Energy Inc.	18-Sep-2001	17-Sep-2005	✓	17-Sep-2010	2,000,000
EL414 [4]	84,880	MGM Energy Corp.	18-Sep-2001	17-Sep-2005	✓	17-Sep-2009	10,750,000
EL423	90,632	Husky Oil Operations Limited	8-Jun-2004	7-Jun-2008	✓	7-Jun-2012	24,800,000
EL425	27,230	Petro-Canada	8-Jun-2004	7-Jun-2010		7-Jun-2013	22,000,000
EL428 [4]	81,008	Apache Canada Ltd.	18-May-2005	17-May-2009		17-May-2013	3,200,000
EL429 [4]	82,880	BG International Limited	18-May-2005	17-May-2009		17-May-2013	12,500,000
EL430 [4]	51,637	MGM Energy Corp.	18-May-2005	17-May-2009		17-May-2013	3,510,000
EL431	78,516	Petro-Canada	18-May-2005	17-May-2009		17-May-2014	2,787,792
EL432 [4]	64,048	BG International Limited	18-May-2005	17-May-2009		17-May-2013	4,000,000
EL433 [4]	88,004	Petro-Canada	18-May-2005	17-May-2009	✓	17-May-2013	32,128,045
EL436 [6]	84,353	Talisman Energy Inc.	10-May-2006	9-May-2011		9-May-2015	12,150,000
EL437 [6]	85,993	Talisman Energy Inc.	10-May-2006	9-May-2011		9-May-2015	32,775,000
EL438 [6]	87,183	Talisman Energy Inc.	10-May-2006	9-May-2011		9-May-2015	3,850,000
EL439 [6]	82,820	Talisman Energy Inc.	10-May-2006	9-May-2011		9-May-2015	5,125,000
EL440 [6]	87,872	MGM Energy Corp.	10-May-2006	9-May-2010		9-May-2014	6,300,000
EL441 [6]	88,452	Husky Oil Operations Limited	10-May-2006	9-May-2010		9-May-2014	10,500,000
EL442 [6]	63,312	MGM Energy Corp.	10-May-2007	9-May-2011		9-May-2015	8,260,000
EL443 [6]	91,116	Husky Oil Operations Limited	10-May-2007	9-May-2011		9-May-2015	4,888,888
EL444 [6]	74,604	BG International Limited	10-May-2007	9-May-2011		9-May-2015	1,100,000
EL445 [6]	81,292	BG International Limited	10-May-2007	9-May-2011		9-May-2015	1,100,000
EL454 [6]	82,100	MGM Energy Corp.	1-Dec-2008	30-Nov-2012		30-Nov-2016	5,487,626

• Work Bids rounded to the nearest $

[1] These representatives are current as of December 31, 2009

[2] Under work prohibition orders as per s. 12(1)(a) of the *Canada Petroleum Resources Act*

[3] Consolidation as per s. 25(3) of the *Canada Petroleum Resources Act* (Note that on consolidated licences, one well may not be sufficient to hold all lands in the licence, depending on the terms and conditions)

[4] Licence expired or surrendered during 2009

[5] Per the original licence, Period 1 may be extended using drilling deposits or through amendment to the licence

[6] One-year extension of term provided to Exploration Licences in Period 1 in the Central Mackenzie Valley

✓ Well requirement met as of year end. The drilling of one exploratory or delineation well prior to the end of Period 1 of the term is a condition precedent to obtaining tenure to Period 2.

Security Deposits Being Administered

Security deposits for Period 1 and 2 are held on a refundable basis.

During Period 1, 25% of the work expenditure bid is held as security to be refunded at $1 for each $4 of eligible expenditure. Security deposits held as of December 31, 2009 totalled $499,397,863.

During Period 2, the security deposit comprises rentals payable annually at the following rate per hectare: 1st year @ $3.00; 2nd year @ $5.50; 3rd and 4th years @ $8.00. Rentals are refunded at $1 for every $1 of eligible expenditure. Security deposits held as of December 31, 2009 totalled $5,508,117.

Table 5: Revenues from Administration of Interests ($)

	2004	2005	2006	2007	2008	2009
Non refundable rentals (Former Leases) [1]	61,111	66,500	62,500	62,749	54,817	21,613
Issuance and Registration Fees	8,600	13,500	19,891	26,998	30,762	43,306
Forfeitures [2]	16,933,374	26,228,000	0	1,290,404	22,174,929	2,054,238
Total	**17,003,085**	**26,308,000**	**82,391**	**1,380,151**	**22,260,508**	**2,119,157**

[1] Former Leases were issued under the *Canada Oil and Gas Land Regulations* and continued in force pursuant to section 114 of the *Canada Petroleum Resources Act*.

[2] Work deposits which were not offset by work expenditures are forfeit after the expiry of either Period 1 or 2 of an Exploration Licence.

Benefits

Section 5.2 of the *Canada Oil and Gas Operations Act* and Section 21 of the *Canada Petroleum Resources Act* state that the requirements for Benefit Plans are to be submitted for the Minister's consideration prior to the authorization of oil and gas activities or the approval of development plans.

In a Benefits Plan, a company proposing exploration or development activities describes the principles, strategies and procedures that it will commit to implementing to ensure full and fair opportunity for qualified Canadians and Canadian businesses competing for jobs and business contracts. The Department requires that a company monitor and submit reports on the implementation of the commitments in a Benefits Plan. As a long-standing practice, the department encourages companies to favour local and regionally qualified Aboriginal and northern Canadians and businesses on a competitive basis.

This year, exploration in the Mackenzie Delta provided training, employment and commercial benefits to local northern communities. In the southern Mackenzie Valley, ongoing oil and gas maintenance and production activities in the Cameron Hills area continued to benefit the local and regional economies. Offshore in the Beaufort Sea, a deepwater seismic acquisition program provided training, employment and goods and services supply opportunities to the local and regional labour force as well as to local and

regional businesses. Over the course of the winter and summer of 2009, these activities contributed an estimated $100 million in direct benefits to local, regional and other Canadian economies.

Environmental Considerations

As part of the annual process leading to Calls for Nominations, northern Aboriginal groups are notified of the Minister's intention to open lands and are provided the opportunity to identify areas of environmental sensitivity and those of special interest for cultural reasons. This dialogue explores concerns which may be raised about oil and gas activities initiated by issuance of oil and gas Exploration Licences.

Indian and Northern Affairs Canada also solicits input from expert groups in the territorial governments and other federal departments on the proposed calls, working with departments responsible for planning and managing protected areas such as Marine Protected Areas, Migratory Bird Sanctuaries and the Mackenzie Valley Protected Areas Strategy to ensure that the various land management initiatives are integrated. All input, together with northern land use plans such as the Gwich'in Land Use Plan and the draft Sahtu Land Use Plan are used in developing the Call area, maps, and other documents.

Environmental considerations and the input of northern Aboriginal groups are important in the design and implementation of the Minister's petroleum rights issuance initiatives. They serve to alert industry to potential concerns which may need to be addressed when companies subsequently apply for land use permits, water licences, and work authorizations to conduct operations such as seismic or drilling on their Exploration Licences. The area opened for nominations, the content of the Call for Nominations package, and the terms and conditions associated with both the Calls for Nominations and bids reflect consideration of advice received through this engagement process.

Environmental Sensitivities in the Southern Beaufort Sea and Mackenzie Delta

In 2009, Indian and Northern Affairs Canada introduced the Petroleum and Environmental Management Tool (PEMT) in its consultations leading up to the Call for Nominations.

The PEMT is an on-line, interactive geographic information system and generates maps on environmental and socio-economic sensitivity for a selection of valued ecosystem components based on inputs from expert sources. It also includes maps summarizing geological potential. The initial focus of the PEMT is the southern Beaufort Sea and Mackenzie Delta within the Inuvialuit Settlement Region.

The objectives of the PEMT are to improve rights issuance planning and decision making, to foster information exchange with northern Aboriginal groups and other stakeholders, and to alert companies considering acquiring Exploration Licences of potential sensitivities which may require special mitigation efforts. Mapped environmental themes currently include polar bears, bowhead whales, beluga whales, migratory birds and ringed seals. Socio-economic sensitivity is developed from traditional hunting information. These maps will be further refined and developed in

consultation with resource management partners.

A link to the PEMT can be found at www.ainc-inac.gc.ca/nth/og/pemt/index-eng.asp in addition to extensive background information on the initiative.

Environmental Studies Research Funds (ESRF)[6]

The Environmental Studies Research Fund (ESRF) finances environmental and social studies related to the exploration, development and production of oil and gas resources on frontier lands. The Fund is established under Section VII of the *Canada Petroleum Resources Act*. The ESRF Management Board funded the northern study program for 2009 through levies on oil and gas interests in the North voted by the Board and subsequently approved by the Minister. The 2009 budget approved for the North by the Minister of Indian Affairs and Northern Development, based upon the recommendation of the Board, was $677,975.

The Northern Oil and Gas Branch of Indian and Northern Affairs Canada is a member of the ESRF Management Board and chairs the ESRF Northern Advisory Committee, helping to shape research priorities and projects funded through ESRF.

One final report on northern research was published in 2009: ESRF Report #173 *Assessment of Drilling Waste Disposal Options in the Inuvialuit Settlement Region*, prepared by AMEC Earth and Environmental, Calgary, Alberta. Three other studies were completed in 2009 and are currently in the final stages of publication: ESRF Report #172 *Valued Component Thresholds (Management Objectives) Project;* ESRF Report #174 *Bosworth Creek (NWT) Literature Review;* and ESRF Report #175 *Considerations in developing oil and gas industry best practices in the North.*

The following research projects were underway in 2009: *An assessment of impacts and recovery of seismic lines* (second year of a three year study); *Review of Tuktoyaktuk Harbour / Offshore Oil and Gas; Seismic Sound Propagation Characteristics in the Beaufort Sea (Workshop); and a Review of Oil Spill State of Knowledge and Identification of Key Issues, Beaufort Sea.*

Other Science Activities

In addition to ESRF, the Northern Oil and Gas Branch coordinates federally-funded science research for the Mackenzie Gas Project and induced oil and gas activities, represents the Department on the Frontier Oil and Gas Portfolio Committee of the *Program on Energy Research and Development*, and leverages partnerships among industry, Aboriginal communities and other federal government departments to initiate scientific research needed to support management and regulatory decision-making.

[6] For further information see the ESRF web site at www.esrfunds.org.

EXPLORATION ACTIVITY IN THE NORTH

Northern Operations

Summary

Metres drilled in the Northwest Territories totalled 10,024 m in 2009. Fifty-eight per cent of this total (5,874 m) was accounted for by three exploratory wells on the Mackenzie Delta and the balance by three development wells in the Norman Wells Field. Only two new exploratory wells were commenced in 2009, both on the Mackenzie Delta. A third well on the Delta, spudded just before year end was drilled to total depth in January. There was no exploratory drilling in the central Mackenzie Valley, southern Northwest Territories or Arctic offshore.

There were two geophysical field operations in 2009; both related to exploration of offshore Exploration Licences in the Beaufort Sea. A total of 1,487.8 km of 2D and 1,576.7 km^2 of 3D seismic were acquired. Five additional geophysical programs were approved for data purchase and reprocessing. These programs did not involve field operations.

Total exploration expenditures in the North in 2009 are estimated at $117 million.

Southern Northwest Territories

There was no new exploration or development drilling in this region in 2009. Five wells were re-entered in the Fort Liard area for purposes of suspension or abandonment.

Mackenzie Delta

In the Mackenzie Delta, MGM Energy completed a three well drilling program. Ellice J-27, spudded in late December was drilled to a total depth of 2102 m on EL427-A on the outer Mackenzie Delta. This well was tested and announced a gas discovery by the company[7] . North Ellice J-17 and North Ellice A-25 were drilled in February and March also on EL427-A: the former, drilled to 1712 m was suspended and the latter drilled to 2475 m was abandoned.

No geophysical field operations were conducted onshore Mackenzie Delta in 2009.

Beaufort Sea

BP acquired extensive 3D marine seismic at Pokak on the outer continental shelf of the central Beaufort Sea. This program covered most of BP's EL449 with a complementary 2D program extending onto adjoining licence EL451.

Central Mackenzie Valley

There was no industry exploration or development activity in this region in 2009.

Arctic Islands of Nunavut

There was no industry exploration or development activity in this region in 2009.

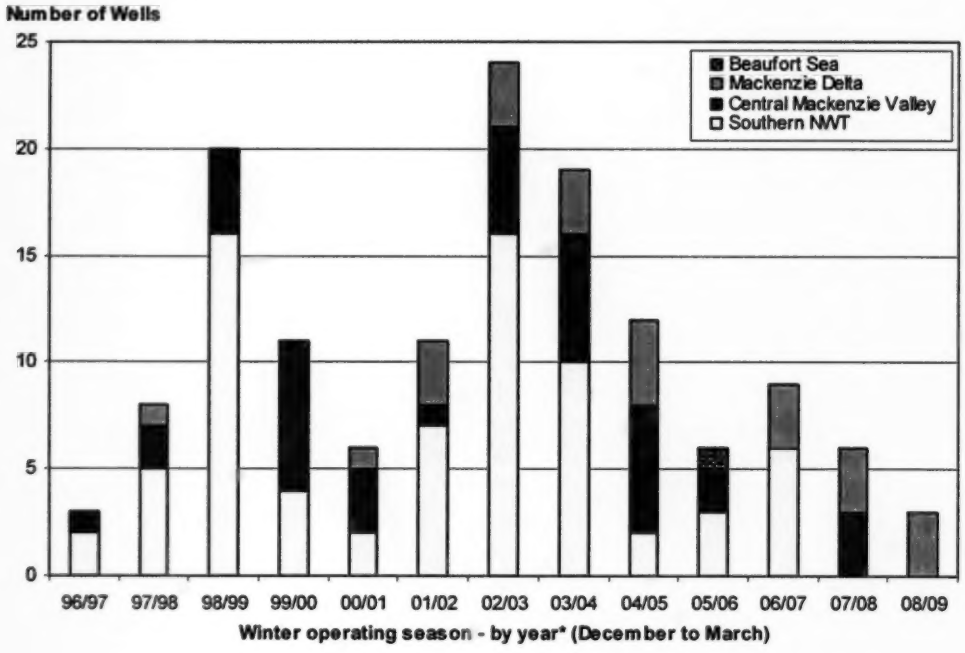
Eastern Arctic Offshore

There was no industry exploration or development activity in this region in 2009.

[Note: The Frontier Information Office of the National Energy Board is the primary source of operational data cited above.]

[7] MGM Energy Corp.: Annual Information Form, March 23, 2009, p. 16

Figure 1: Wells Drilled



*Excludes Norman Wells development drilling

Table 6: Drilling Statistics 2009

WELL NAME	Lat (NAD 27)	Long (NAD 27)	Class [1]	Total Depth (m)	Metres drilled in 2009	Begun	Rig Released	Well Status[2]	Licence [3]
Southern Territories									
Re-Entries of previously drilled wells									
Paramount et al ARROWHEAD RIVER N-65	60.579	-122.955	EX	2925.0	-	10/Feb/09	13/Feb/09	S	SDL129
Paramount et al BOVIE C-76A	60.254	-122.990	EX	3464.0	-	24/Feb/09	24/Mar/09	A	SDL122
Paramount et al FORT LIARD O-35	60.080	-123.356	DEL	2121.0	-	30/Jan/09	02/Feb/09	S	PL07
Paramount et al FORT LIARD I-46	60.092	-123.382	DEL	1449.0	-	03/Feb/09	09/Feb/09	S	PL08
Paramount et al BOVIE J-76	60.262	-122.983	EX	3353.0	-	14/Feb/09	22/Feb/09	S	SDL122
Mackenzie Valley									
New Wells									
Imperial et al NORMAN WELLS N-50X [4]	65.257	-126.866	DEV	1210.0	-	05/Aug/09	25/Aug/09	S	PA
Imperial et al NORMAN WELLS M-50-2X [4]	65.257	-126.866	DEV	2032.0	-	08/Jul/09	03/Aug/09	S	PA
Imperial et al NORMAN WELLS O-42X	65.257	-126.866	DEV	998.0	-	26/Aug/09	04/Sep/09	S	PA
Mackenzie Delta									
New Wells									
MGM et al NORTH ELLICE J-17	69.275	-135.802	EX	1712.0	-	02/Feb/09	23/Feb/09	S	EL427-A
MGM et al ELLICE J-27 [5]	69.111	-135.848	EX	2102.0	1,597.0	25/Dec/08	22/Jan/09	S	EL427-A
MGM et al NORTH ELLICE A-25	69.235	-135.836	EX	2475.0	-	02/Mar/09	26/Mar/09	A	EL427-A

[1] Class EX=exploratory, DEL=delineation, DEV=development

[2] Status S=suspended, A=abandoned, PR=production

[3] Licence EL=Exploration Licence, SDL=Significant Discovery Licence, PL=Production Licence, SA=Sahtu Lands, PA=Norman Wells Proven Area

[4] Horizontal Well

[5] Drilling over year-end

Table 7: Seismic Acquisition

	2001	2002	2003	2004	2005	2006	2007	2008	2009
2D Seismic (in Km)	3,251	2,506	586	189	564	3,917	6,028	12,684	1,488
3D Seismic (in Sq. Km)	7,893	4,060	194	804	635	1,100	0	1,638	1,577

DEVELOPMENT AND PRODUCTION

Only three fields produced oil or gas in the Northwest Territories in 2009; the Norman Wells oil field in the central Mackenzie Valley, the Ikhil gas field on the Mackenzie Delta and the Cameron Hills field southwest of Hay River in the southern Northwest Territories.

Imperial Oil's Norman Wells field in the central Mackenzie Valley is the northern anchor for the Enbridge Norman Wells oil pipeline which terminates in Zama, Alberta. This major oil field discovered in 1920 continues to produce oil from a Devonian age reef largely underlying the Mackenzie River. By the end of 2009, the field had produced a cumulative total of 40.7×10^6 m^3 (256 million barrels), and 2009 saw a 2.75% decrease in production over 2008 levels. The field was fully developed in the early 1980s and has produced continuously since 1985, although there were earlier periods of limited production.

Gas from the Ikhil field on the Mackenzie Delta is produced from two wells and delivered through a 50 km pipeline to Inuvik, where it is used for power generation and heating. To end of 2009, the field had produced a cumulative total of 160.4×10^6 m^3 (5.7 billion cubic feet) of natural gas over 11 years of production.

The only field producing from the southern Northwest Territories in 2009 was Cameron Hills, operated by Paramount. Production from the four fields operated by this company in the Fort Liard area continues to be suspended. The Cameron Hills field produces both oil and gas, which are delivered by pipeline south to the Bistcho area of northern Alberta. After a producing life of eight years, the field had produced 752×10^6 m^3 (26.6 billion cubic feet) of natural gas and 329×10^3 m^3 (2.1 million barrels) of oil by year end.

No fields were producing from Nunavut or offshore Arctic waters.

Total natural gas production in the Northwest Territories in 2009 was 192.4×10^6 m^3 (6.8 billion cubic feet), a 5.2% drop in production from the previous year. Over half of the gas produced was associated with oil at Norman Wells and used for field operations. Most of the decline in production was due to Cameron Hills (16.7% lower in 2009).

Total aggregate oil production in 2009 was 901.2×10^3 m^3 (5.7 million barrels), a 4.3% decline from 2008. Part of the decline was due to the 32.6% drop in oil production at Cameron Hills and the rest from the expected decline in Norman Wells production.

Table 8: Oil and Gas Production

	2005	2006	2007	2008	2009	2008-2009 Change
Oil Production (thousands of cubic metres)						
Norman Wells (Imperial Oil)	1042.6	1012.4	964.3	893.6	869.0	-2.75%
Cameron Hills (Paramount)	47.2	70.3	53.3	47.8	32.2	-32.64%
Total	**1089.8**	**1082.7**	**1017.6**	**941.4**	**901.2**	**-4.27%**
Gas Production (millions of cubic metres)						
Norman Wells (Imperial Oil)	102.4	109.3	103.7	103.8	107.5	3.56%
Ikhil (AltaGas)	15.7	16.2	17.9	18.9	18.0	-4.76%
Cameron Hills (Paramount)	91.3	93.5	99.0	80.3	66.9	-16.69%
Fort Liard ("F-36" - Paramount)	50.7	29.9	52.6	0	0	
Fort Liard ("K-29" - Paramount)	203.3	59.1	49.1	0	0	
Southeast Fort Liard ("N-01" - Paramount)	38.8	11.9	0	0	0	
Total	**502.2**	**319.9**	**322.3**	**203.0**	**192.4**	**-5.22%**

Note: Liard production suspended

Figure 2: Oil Production

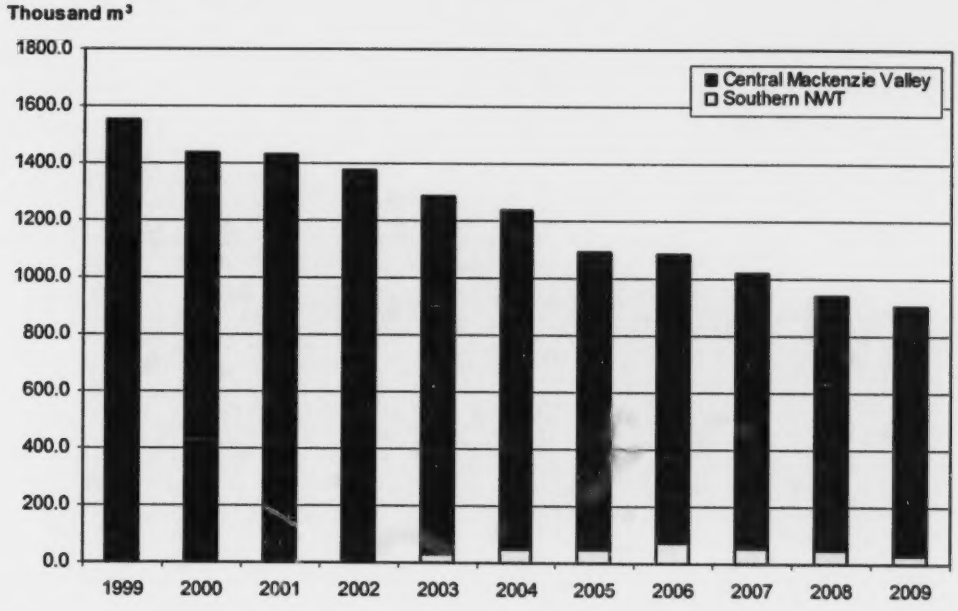
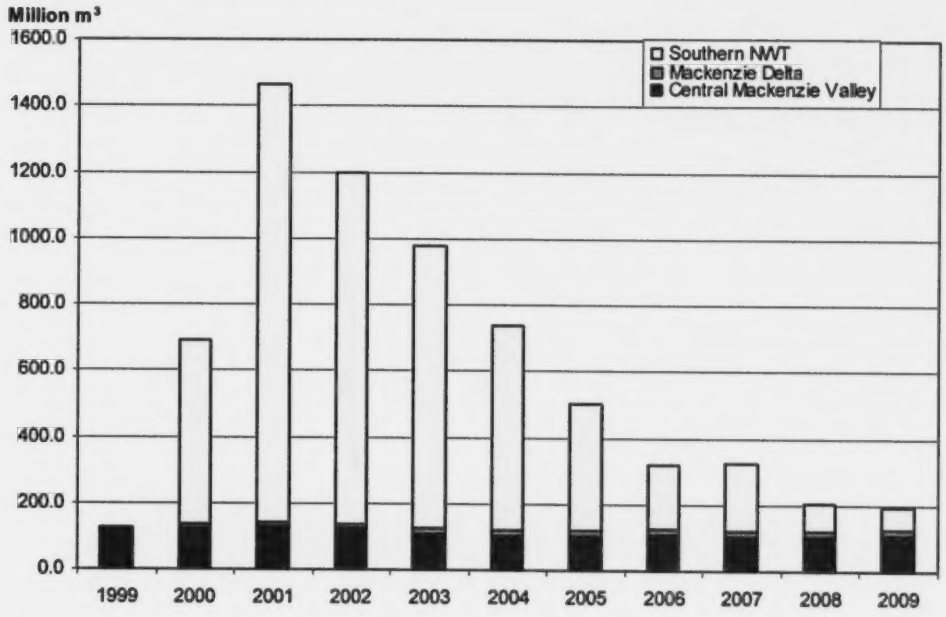


Figure 3: Gas Production



ROYALTIES

Royalties received in the 2009 calendar year from oil and gas production on northern frontier lands amounted to $18,876,656. This 38% drop from 2008 is due to decreased production and lower prices in 2009 (See Table 9).

One of the amendments to the Frontier Lands Petroleum Royalty Regulations, which came into force in 2008, was the introduction of penalties for failure to file returns on time. While most companies have continued to comply with filing deadlines, four assessments have been issued under the amended regulations and one is outstanding. The amount of penalty received in 2009 was $119,000.

Table 9: Royalties ($)

	2005	2006	2007	2008	2009 [2]
Royalty [1]	16,051,861	30,477,442	25,078,071	30,381,061	18,876,656

Note: Royalty from the Ikhil field is not included. Ikhil lies on Inuvialuit Lands and is administered on behalf of the Inuvialuit pursuant to s. 7 (94) of the Inuvialuit Final Agreement.

[1] Royalty total includes Norman Wells royalty on two thirds of production but not the net profit from the Crown share in the field.

[2] 2009 revenue includes a deposit of $4 million from an interest holder against an estimated audit assessment, to be completed in 2010.

Audits and Assessments

Three audits were underway during 2009. One audit was completed and the remaining two are scheduled for completion in 2010.

Royalty Administration

The development and testing of the new web-based Royalty Management System (RMS) have neared completion. The system is an online electronic reporting application used by interest holders to submit required production and sales figures and will greatly assist the efficient administration of petroleum royalties.

FURTHER INFORMATION

Northern Oil and Gas Branch

Please check our website first at www.ainc-inac.gc.ca/nth/og/

To obtain further information, please contact appropriate individuals below by phone or in writing.

Mailing address:
Northern Oil and Gas Branch
Department of Indian and Northern Affairs
10th Floor, 15/25 Eddy Street
OTTAWA, ON K1A 0H4

Courier only:
Northern Oil and Gas Branch
Department of Indian and Northern Affairs
15/25 Eddy Street
GATINEAU, QC K1A 0H4
Telephone: (819) 997-0877
Fax: (819) 953-5828

Information on the resource management regime, Calls for Nominations and Bids, and other related information: Manager, Land Tenure – Telephone: (819) 934-9392

Information on registration procedures and regulations, exploration, significant discovery and Production Licences, transfers, and notices: Registrar – Telephone: (819) 997-0048

Information on Northern Oil and Gas Maps, and Geographic Information System (GIS) Data: Geomatics Officer – Telephone: (819) 953-8988.

Information on northern exploration history and geological / geophysical activities: Senior Petroleum Geologist – Telephone: (819) 953-8722

Information on royalty policy and royalty submissions: Manager, Fiscal Policy and Royalty Administration – Telephone: (819) 953-8790

Information on Benefits Plan requirements for Nunavut and northern offshore is available from the Northern Oil and Gas Branch – Telephone (819) 953-2087.

Information on Benefits Plan requirements associated with new exploration programs on land in the Northwest Territories is available from the department's Northwest Territories Regional Office at:

Petroleum Development Division
Northwest Territories Regional Office
Department of Indian and Northern Affairs
4914-50th Street, P.O. Box 1500
YELLOWKNIFE, NT X1A 2R3
Telephone: (867) 669-2469 / Fax: (867) 669-2705

Other Sources of Information

National Energy Board

- The Operations Business Unit regulates the exploration, development and production of hydrocarbon resources in non-Accord frontier lands under the *Canada Petroleum Resources Act*, the *Canada Oil and Gas Operations Act*, and the *National Energy Board Act*.
- The Frontier Information Office provides access to maps, technical information, geological and geophysical reports, well history reports and records.

National Energy Board (NEB)
444 Seventh Avenue SW
CALGARY, AB T2P 0X8
Telephone: (403) 292-4800
Website: http://www.neb.gc.ca/

Geological Survey of Canada

The Geological Survey of Canada Calgary provides public viewing and sampling facilities for cores and samples, and information on wells drilled north of 60 at its offices at:

Geological Survey of Canada Calgary
3303-33rd Street NW
CALGARY, AB T2L 2A7
Telephone: (403) 292-7000
Website: http://gsc.nrcan.gc.ca/org/calgary/

Information on geoscience in the Baffin Bay – Davis Strait region is available from:

Geological Survey of Canada Atlantic
Bedford Institute of Oceanography
P.O. Box 1006
DARTMOUTH, NS B2Y 4A2
Website: http://gsc.nrcan.gc.ca/org/atlantic/